

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A production method of a DDR type zeolite membrane, characterized in that a DDR type zeolite membrane is formed by carrying out hydrothermal synthesis with using a raw material solution having a containing ratio of 1-adamantanamine to silica (1-adamantanamine/SiO₂) [[of]] in a molar ratio of 0.03 to 0.4, a containing ratio of water to the silica (water/SiO₂) in a molar ratio of 20 to 500, and a containing ratio of ethylenediamine to the 1-adamantanamine (ethylenediamine/1-adamantanamine) in a molar ratio of 5 to 32; and a DDR type zeolite powder to be a seed crystal.

Claim 2 (Original): The production method of a DDR type zeolite membrane according to claim 1, wherein said raw material solution has a containing ratio of said 1-adamantanamine to said silica (1-adamantanamine/SiO₂) of 0.05 to 0.25 in a molar ratio, a containing ratio of said water to said silica (water/SiO₂) of 28 to 220 in a molar ratio, and a containing ratio of said ethylenediamine to said 1-adamantanamine (ethylenediamine/ 1-adamantanamine) of 8 to 24 in a molar ratio.

Claim 3 (Previously Presented): The production method of a DDR type zeolite membrane according to claim 1, wherein said raw material solution is prepared by dissolving said 1-adamantanamine in said ethylenediamine to prepare a 1-adamantanamine solution, and then mixing said 1-adamantanamine solution with a silica sol solution containing silica.

Claim 4 (Previously Presented): The production method of a DDR type zeolite membrane according to claim 1, wherein said hydrothermal synthesis is performed at 130°C to 200°C.

Claim 5 (Previously Presented): The production method of a DDR type zeolite membrane according to claim 1, wherein said DDR type zeolite powder is dispersed in said raw material solution.

Claim 6 (Previously Presented): The production method of a DDR type zeolite membrane according to claim 1, wherein said DDR type zeolite membrane is formed on a porous substrate.

Claim 7 (Previously Presented): The production method of a DDR type zeolite membrane according to claim 1, wherein said DDR type zeolite powder is deposited on a porous substrate, and said raw material solution is brought into contact with said porous substrate to form said DDR type zeolite membrane on said porous substrate.

Claim 8 (Previously Presented): The production method of a DDR type zeolite membrane according to claim 6, wherein a thickness of said DDR type zeolite membrane formed on said porous substrate is 0.1 to 50 μm .

Claim 9 (Previously Presented): The production method of a DDR type zeolite membrane according to claim 6, wherein said porous substrate is in the form of a plate, a cylinder, a honeycomb, or a monolith having a plurality of cylindrical tubes integrated.

Claims 10-23 (Canceled).

Claim 24 (Currently Amended): A gas separation method for separating carbon dioxide (CO₂) at least one type of gas component from a mixed gas containing at least two types of gas components selected from a group consisting of carbon dioxide (CO₂), hydrogen (H₂), oxygen (O₂), nitrogen (N₂), and methane (CH₄), normal-butane (n-C₄H₁₀), isobutane (i-C₄H₁₀), sulfur hexafluoride (SF₆), ethane (C₂H₆), ethylene (C₂H₄), propane (C₃H₈), propylene (C₃H₆), carbon monoxide (CO), and nitrogen monoxide (NO), by making the carbon dioxide (CO₂) and methane (CH₄) said mixed gas components permeate through a DDR type zeolite membrane

being formed as a membrane on a substrate and including a main component of silica, and wherein each single gas permeance at room temperature and 100°C are different, respectively to separate ~~said at least one type of gas component~~ the carbon dioxide (CO₂) from the mixed gas.

Claims 25-30 (Canceled).

Claim 31 (Previously Presented): A production method of a DDR type zeolite membrane composite, characterized by forming a raw material solution having a mixing ratio of 1-adamantanamine to silica (1-adamantanamine (mol)/silica (mol)) of 0.03 to 0.4, and a mixing ratio of water to silica (water (mol)/silica (mol)) of 20 to 500, immersing a porous substrate in said raw material solution for hydrothermal synthesis, thereby forming a DDR type zeolite layer deposited within pores of said porous substrate and having a thickness of 5 to 50 times of a mean pore diameter of said porous substrate, and being formed from a DDR type zeolite, which is formed within pores of at least one surface of said porous substrate.

Claim 32 (Previously Presented): The production method of a DDR type zeolite membrane composite according to claim 31, further comprising another DDR type zeolite layer deposited outside of the porous substrate having a thickness of 30 µm or less, and being formed on a surface of the porous substrate on which the DDR type zeolite layer deposited within said pores of said porous substrate is disposed.

Claim 33 (Previously Presented): The production method of a DDR type zeolite membrane composite according to claim 31, wherein said porous substrate has a mean pore diameter of 0.05 to 10 µm.

Claim 34 (Previously Presented): The production method of a DDR type zeolite membrane composite according to claim 31, wherein said hydrothermal synthesis is performed at 130°C to 200°C.

Claim 35 (Previously Presented): The production method of a DDR type zeolite membrane composite according to claim 31, wherein said raw material solution further contains a DDR type zeolite powder to be a seed crystal.

Claim 36 (Previously Presented): The production method of a DDR type zeolite membrane composite according to claim 31, wherein a DDR type zeolite powder to be a seed crystal is deposited on surface of said porous substrate to be immersed in said raw material solution.